Title of the Invention :

MULTIMEDIA INFORMATION DELIVERRY SYSTEM AND MOBILE
INFORMATION TERMINAL DEVICE

5   Background of the Invention:

<Technical Field of the Invention>

The present invention relates generally to handheld
or "mobile" information terminals for access to networks
and a server for delivery of information, and more

10   particularly to mobile-oriented multimedia information
provision systems employing position information
detectable mobile information terminals. The invention
also relates to multimedia information delivery systems
for service-providing information as to a distribution of

15   people at land spots including but not limited to event
places and sightseeing spots, along with mobile
information terminals operatively associated therewith.

<Prior Arts>

As a mobile-oriented information guidance apparatus,

20   prior known schemes for guiding land area information and
peripheral personal information plus visit history
information in accordance with the position of a terminal
are disclosed, for example, in Japanese application patent
laid-open publication No. Hei 11-55726 (first prior art)

25   and Japanese application patent laid-open publication No.
Hei 11-252003 (second prior art). In addition, there are
also commercially available today those products that are

designed to utilize portable or handheld radiotelephone handsets and/or amateur radio stations to map-display mutual positions or locations on a land map of on-vehicle navigation devices (third prior art).

5   Additionally, those for detecting the degree of crowdedness or congestion at a specific place or land spot include the one that detects such congestion by use of image processing technologies as disclosed in Japanese application patent laid-open publication No. Hei 10-312448

10   (fourth prior art).

Alternatively, generally in the case for detection of the degree of popularity, it has been disclosed for example in Japanese application patent laid-open publication No. Hei 9-91308 (fifth prior art) to provide a page access

15   counter on a home page on the Internet--a worldwide collection of networks and gateways as well known in the art--for calculation of the popularity from the resultant count number thereof.

Additionally, as the prior art for servicing images

20   on networks, there is a technique as disclosed in Japanese application patent laid-open publication No. Hei 11-154218 (sixth prior art).

However, in the first and second prior arts, privacy problems might occur although these advantageously offer

25   capabilities to specify personal information from position information. In particular, in sightseeing spots and/or event places, people may act together in groups: in such

case, although it is required to be aware of the positions of persons belonging to the same group, it is no longer necessary to know positions of persons of no concern.

On the other hand, with the third prior art, it is required to let the terminal side have land map information, which results in mobile information terminals suffering from occurrence of size/cost problems. Another problem is that communication gets started once at a time whenever an attempt is made to search for a present position of a partner or companion of interest, which in turn leads to reduction of usability with an increase in number of the individuals who belong to the group.

Further, with the fourth prior art, there is a problem such as an incapability to install any stationary cameras at unspecifiable places such as sightseeing spots or the like.

Also note that with the fifth prior art, the degree of popularity detected is a mere favorite on networks, and thus a problem occurs as to an inability to well reflect the actual popularity of any place and/or sightseeing spot concerned.

Additionally with the sixth prior art is the one that merely performs printout services of photographic images taken or "shot" at home, which is not the one that services accommodation or "importation" of photo images obtained at event places and/or sightseeing spots on a real time basis and thus is encountered with a problem as to

inferiority of usability.

Summary of the Invention:

The present invention has been made in view of the above points, and its primary object is to provide, in a multimedia information delivery system comprising both a plurality of information terminal devices and server apparatus, an improved information delivery system and information terminal device(s) capable of recognizing positions of users who are carrying their information terminal devices to thereby provide information services by utilizing the positions thus recognized.

Another object of this invention is to effectively make full use, in a multimedia information delivery system comprising both a plurality of information terminal devices and server apparatus, of information processing functions and information storage functions as built in the server apparatus while at the same time letting the information terminal devices connected via communication links to the server apparatus be less in weight and yet high in cost savability in a way suitable for increase in hand-carriability thereof.

To attain the foregoing objects the information delivery system in accordance with this invention is arranged to provide, in each of a plurality of information terminal devices, position detection means for detecting its own position, terminal side communication means for sending information indicative of such detected position

toward a server apparatus while receiving information as sent from the server apparatus, operation instruction receipt means for receiving and accepting from a user his or her operation instruction for instruction of the content

5 of a service required and for permitting transmission of the operation instruction to said server apparatus via said terminal side communication means, and output means for outputting information being sent from said server apparatus in a way corresponding to said service required

10 while providing in the server apparatus server side communication means for receiving information indicating a position as sent from said each information terminal device and for sending information being generated by utilization of the position information to the information

15 terminal device and processor means for utilizing the position information as sent from said information terminal device to thereby generate information to be sent to said information terminal device.

Furthermore, in the information delivery system of the

20 instant invention, said information terminal device is the one that is designed to send the information as to the position of such information terminal device to said server apparatus in cases where a specified time has elapsed from its previous position information transfer event or

25 alternatively in case the position has changed by a degree greater than a predefined threshold value, characterized in that said server apparatus further comprises position

information storage means for storing therein position information as sent from said plurality of information terminal devices in units of users of the information terminal devices.

Brief Description of the Drawings:

Fig. 1 is an explanation diagram showing an overall configuration of a multimedia information delivery system in accordance with the present invention;

Fig. 2 is a block diagram showing one example of the internal arrangement of a portable or handheld information terminal device in accordance with this invention;

Fig. 3 is a block diagram showing one example of the inside configuration of an information delivery server;

Fig. 4 is an explanation diagram showing an application example to an event place as a typical application of the invention;

Fig. 5 is an explanation diagram showing an application example to a sightseeing spot as a typical application of the invention;

Fig. 6 is an explanation diagram showing an outline of a guidance service;

Fig. 7 is an explanation diagram showing an outline of a position service;

Fig. 8 is an explanation diagram showing an outline of a landmark service;

Fig. 9 is an explanation diagram showing an outline

of a route search service;

Fig. 10 is an explanation diagram showing an outline of a situation/history service;

Fig. 11 is an explanation diagram showing an outline of personal service;

Fig. 12 is an explanation diagram showing an outline of an image service;

Fig. 13 is an explanation diagram showing an example of a business method or "model" in accordance with the invention;

Fig. 14 is a flowchart for realization of a guidance management function:

Fig. 15 is a flowchart for realizing a position management function;

Fig. 16 is a flowchart for realizing a self-position function.

Fig. 17 is a flowchart for realizing group position processing.

Fig. 18 is a flowchart for realizing group registration processing;

Fig. 19 is a flowchart for realizing a landmark management function;

Fig. 20 is a flowchart for realizing landmark display processing;

Fig. 21 is a flowchart for realizing landmark registration processing;

Fig. 22 is a flowchart for realizing landmark search

processing;

Fig. 23 is a flowchart for realizing a route search management function;

Fig. 24 is a flowchart for realizing route search

5   processing;

Fig. 25 is a flowchart for realizing recommended route search processing;

Fig. 26 is a flowchart for realizing a situation/history management function;

10   Fig. 27 is a flowchart for realizing congestion processing;

Fig. 28 is a flowchart for realizing popularity processing;

Fig. 29 is a flowchart for realizing history

15   processing;

Fig. 30 is a flowchart for realizing a person management function;

Fig. 31 is a flowchart for realizing an image control function;

20   Fig. 32 is a flowchart for realizing image upload processing;

Fig. 33 is a flowchart for realizing image download processing;

Fig. 34 is a flowchart for realizing image printout

25   processing;

Fig. 35 is a flowchart for realizing a charge collection function; and

Fig. 36 is an explanation diagram showing one example of a display screen to be displayed on a display screen of the handheld or "mobile" information terminal device of Fig. 2.

5

Description of the Invention:

One preferred embodiment of the present invention will now be set forth with reference to the accompanying drawings of Figs. 1 through 36.

10   Fig. 1 is a diagram showing one exemplary entire configuration of a multimedia information delivery system in this embodiment. In the system of this embodiment, there are connected to a globe-spanning computer network called the Internet 40 an information transfer/delivery

15 server 50 and ordinary users' "non-mobile" Internet terminals (personal computers or "PCs") 30a to 30n which are installed at specific positions plus a communication base station 20 offering capabilities to provide over-the-air radio communications.

20   On the other hand, handheld or mobile information terminals (personal digital assistants or "PDAs") 10a-10n are connected to the communication base station 20. It is possible to take information as to event places and/or sightseeing spots out of the information transfer/delivery

25 server 50 whenever the need arises. The mobile information terminals 10a-10n are, for example, multifunction portable radiophone handsets with image pickup functionality and

position detection functionality realizable by use of a global positioning system (GPS) and a camera(s). When a mobile information terminal 10 is built in a land vehicle, it becomes a server type car navigation device for

5 implementation of navigation services upon receipt of information incoming from the server.

Fig. 2 is a diagram showing one example of the internal configuration of one mobile information terminal (PDA) 10a in the illustrative embodiment while the remaining mobile

10 information terminals are similar in arrangement thereto. In Fig. 2, "10-1" designates a radiocommunication antenna; 10-2 denotes a communication unit that is operable to perform communication with the communication base station 20; 10-3 indicates a processor/browser unit which is

15 constituted from a central processing unit (CPU) and a memory for performing control processing typically including overall control of the mobile information terminal while displaying a variety of cites as provided on the Internet; 10-9 is a position sensor (GPS) for

20 detection of a present location of the mobile information terminal; 10-4, a position detector unit for detecting the location from a signal of GPS 10-9.

The position detector unit 10-4 is operable to detect the position periodically for sending forth information

25 about the detected position toward the communication base station 20 via the processor/browser unit 10-3 and radiocommunication antenna 10-2. Alternatively it may be

arranged, in place of the periodical position detection, to send the detected position information to the communication base station 20 in cases where a difference between the detected position information and its previous position information increases to go beyond a predefined value or alternatively in the event that an operation instruction is output or still alternatively in case communication is done with the information delivery server 50. In addition, although in the illustrative embodiment the GPS 10-9 is employed for position detection, the position detection methodology in the invention should not be limited thereto and may be modified to employ any other appropriate methods capable of specifying a present position or location of the mobile information terminal. For example, those methods for detecting the position by use of other means are be employable, such as a position detection method utilizing a personal handyphone system (PHS) and a method for detection the position by use of transport distances of radio wave from a plurality of base stations.

Further in Fig. 2, 10-5 designates a charge-coupled device (CCD) camera, a signal of which will be sent to the processor unit 10-3 via an image input unit 10-6. 10-7 is a coordinate input device (TB) whereas 10-8 is a display (liquid crystal display or "LCD" device), wherein these are designed to have an integrated structure with an arrangement permitting direct touch-pen input on a display

screen. 10-10 is a laud speaker that functions as an audio output device.

Multimedia guidance in accordance with the invention as disclosed herein is realized based on linkage of a software of the processor unit 10-3 and a software of the information delivery server 50 while actively using peripheral devices that are involved in the above-stated mobile information terminal 10a.

Fig. 3 is a diagram showing an exemplary internal configuration of the information delivery server 50. In Fig. 3, 50-1 designates a communication unit with the Internet 40; 50-2 denotes a processing unit of the information delivery server 50 as make up from a CPU and memory or memories for implementing required processings in conjunction with displaying by a browser software of the above-noted mobile information terminal 10 and also maintenance and management plus control of accessible Web cites on the Internet. 50-3 to 50-10 are a variety of types of management units for implementation of the functionality of the illustrative information delivery server 50. On the other hand, there are database files of 50-11 to 50-17 in a way corresponding to these management units.

Arrangements of respective management units 50-3 to 50-10 will be described below. The guidance management unit 50-3 is the one that provides guidance as to event places and/or sightseeing spots by multimedia such as still

images or moving or video images and further audio sounds. For instance, at amusement parks, also known as "thema" parks, it provides guidance as to detailed information to a user via the mobile information terminal 10 on a per-thema basis. At an art gallery or museum, it guides by multimedia the information concerning the painter of an art work, his or her personal background, artificial value of the era and others. Alternatively if at a sightseeing spot, it guides historical background and origin or else while commonly owning the value thereof. Guidance is done while substantially simultaneously getting access to a guidance database (DB) (50-11).

A position management unit 50-4 is the one that performs position management by use of a group DB (50-12) and user DB (50-16) plus land map DB (50-13). With the processing at the position management unit 50-4, there are a service for visually displaying a present position information over a land map in a manner such that they overlap each other, and a service for displaying position information of the same group on a map. Obviously it is also possible to perform guidance in a way corresponding to a present position being displayed on a map in cooperation with the processing of the guidance management unit 50-3.

A landmark management unit 50-5 is the one that performs management of landmarks by using the map DB (50-13) and landmark DB (50-14). The term "landmark

management" as used herein may refer to an operation for managing and servicing information as to either a building structure or sight point which may become as a mark in maps in every information classification event--this may be

5   carried out in known navigation systems in some cases. This landmark management service is convenient for determination of a place to be traveled or for execution of route search. Alternatively it may be arranged to demand a registration fee or request advertisement fee

10   based on an access number of landmarks. The landmark management unit 50-5 further comprises landmark display function and landmark registration function along with landmark search function.

A route search management unit 50-6 is operable to

15   perform route search processing from a present position up to a destination location and also search processing of a recommended route(s). During route searching, this unit performs it by using a land map DB (50-13) and history DB (50-15).

20   A situation/history management unit 50-7 performs processing of servicing to users the situation such as the degree of popularity and/or congestion of event places and sightseeing spots and further history information until now. For execution of this service, database files of a

25   history DB (50-15) and/or user DB (50-16) will be used.

An individual or person management unit 50-8 is operable to perform processing for management of

individual users and/or a group to which respective users belong. Each user may receive a variety of services by inputting a user identification (ID) and password in his or her first access event. Although in this embodiment the
5   group DB (50-12) and user DB (50-16) are managed separately, it will be permissible that management is done by adding an item of group information into the user DB (50-16). The group information contains therein the title of a group, group ID, link data to members belonging thereto, by way
10   of example.

An image management unit 50-9 is designed to upload an image or images as photographed by the mobile information terminal 10 to the information delivery server 50 and, adversely, download more than one image where
15   necessary and further performs a printout service of a required image(s). Note here that when performing such printout services, it outputs to a printer 50-18 of the information delivery server 50 to thereby send by mail to the postal address of a requester or, alternatively,
20   transfers an image to the terminal of a photo shop at an event place or sightseeing spot for permitting provision of a print service thereat.

A money collection management unit 50-10 performs money-imposing/charging tasks with respect to users and
25   advertising entities in accordance with service forms and access information. Money charge methodology may include a method for renting the mobile information terminal 10

and then making a levy of a rental fee/charge thereof, a method for determining the amount of money based on an access number or the kind and/or content of a service provided and/or option(s), and a method for doing the same

5   based on either an image file size or storage time period. Additionally in the case of utilization of the communication base station 20, there is a method for receiving a cash-back service from a communication carrier company while adding to its communication fee a service

10   charge of the information delivery server 50. To do this, it will be necessary to leave a history of access situation in accordance with each information service.

Figs. 4 and 5 are diagrams showing one typical application example of the multimedia information delivery

15   system in the illustrative embodiment.

Fig. 4 is the one that shows a layout of an amusement or "thema" park, which is an event place 100. In Fig. 4, reference numeral "110" is used to designate an entrance of the thema park 100; numerals 120 to 150 denote thema

20   halls or "pavilions" as established in the thema park 100; 200-240 each indicate a queue of people waiting for permission of entry to each thema pavilion. And, G11 to G14, G21-G25 and G31-G33 indicate certain individuals (mobile information terminal positions) who have mobile

25   information terminals 10a-10n respectively, wherein G1X, G2X and G3X show that they are specific users who belong to the same group respectively. For example, it can be seen

that people of the group G1X are acting individually at a thema hall 120, thema hall 140 and thema hall 150. Activities of other groups are similar thereto.

Fig. 5 is a diagram showing a land map of a sightseeing spot, wherein 200 to 240 denote the positions of mobile information terminals 10 at respective sightseeing spots. More specifically, 200 indicates a bowling alley; 210 is a "kkk" hospital; 220, DEG laboratory; 230, ABC lab; 240, shrine.

This embodiment is the one that is designed to perform information providing services as will be explained below to a user of a mobile information terminal whose position is presently recognized in a situation shown in Figs. 4 and 5.

An explanation will next be given of an outline of a service in the multimedia information delivery system in accordance with this embodiment. Note here that the degree of congestion and popularity in units of objects of events will be shown as an example of population distribution services.

Fig. 6 is a diagram showing an outline of service to be performed at the guidance management unit 50-3 by the relation of the mobile information terminal 10a versus information delivery server 50. The guidance management unit 50-3 is responsive to receipt of present position information as sent from the mobile information terminal 10 via the communication base station 20 and Internet 40

and an operation instruction being input to a display

screen (LCD 10-8 and TB 10-7), for letting an image 10a1,

text 10a2 and audio 10a3 (audible guidance is available

upon instruction of an icon) corresponding to either the

5   present position or the operation instruction be output

from the information delivery server 50. At this guidance

output processing, when the present position being sent

from the mobile information terminal 10a becomes identical

to a specified position present during this guidance or

10   alternatively falls within a specified position range,

guidance processing will be get started automatically or,

alternatively, such guidance processing gets started at

any given time point in accordance with the user's

operation instruction irrespective of a present position

15   as will be sent thereto.

Fig. 7 is a diagram showing an outline of a service

to be done at the position management unit 50-4. In case

the mobile information terminal 10a sends to the

information delivery server 50 both a present position and

20   an operation instruction corresponding to this service,

the information delivery server 50 operates to extract land

map data of a region including a position indicated by

position information being sent from the mobile

information terminal 10a and then return to the mobile

25   information terminal 10a image data indicating the

position of mobile information terminal 10a on the land

map that has been obtained through expansion of the map

data thus extracted. At the mobile information terminal
10a an image with the self-position's mark G11 being mapped
onto the land map is visually displayed on the display
screen. Whereby, it is advantageously possible to prevent
5   loss of a self-position and/or becoming as a lost child
in the crowd.

On the other hand, at a mobile information terminal
10b, sending to the information delivery server 50 its
present position and group information as well as a group
10   display flag and operation instruction results in marks
G11, G12 of positions of a group containing oneself being
mapped on a land map, causing it to be displayed on the
display screen of this mobile information terminal. Note
here that it is possible to establish privacy by preventing
15   this ID mark from being displayed when the group display
flag is in the off state.

A group position service to be done in the example of
the mobile information terminal 10b is such that it is also
possible to provide such service only to specified
20   individuals who belong to the same group. Due to this, for
example, it is also possible by letting an aged person have
the mobile information terminal 10 to provide a wondering
old person's position specifying service such as
acknowledging his or per location only to a family
25   belonging to the same group. Additionally, detailed
information will be displayed when letting a mouse pointer
go to the group marks G11, G12 or alternatively upon

clicking thereof. Alternatively it may also be arranged to change the mark display in accordance with a person or to offer a capability to register a mark dedicated to the individual's usage only. Still alternatively, it will also be possible that in case an increased number of people belongs to a group, a group list is displayed while permitting its mark to be displayed upon selection thereof.

Fig. 8 is a drawing showing an outline of service to be performed at the landmark management unit 50-5. This shows that the mobile information terminal 10a is in the state that it is receiving a landmark display service. When the mobile information terminal 10a sends its present position and landmark classification along with scale information and operation instruction toward the information delivery server 50, certain landmarks M11 to M14 which fall within a fixed range from the self-position are mapped onto a land map and then displayed at the mobile information terminal 10a. Detailed information will be displayed when letting a mouse pointer be at landmarks M11-M14 or upon clicking thereof.

The mobile information terminal 10b shown herein is in the state that it is receiving a landmark registration service. With this service, when the mobile information terminal 10b sends to the information delivery server 50 several data including but not limited to designated coordinates, landmark information (classification, title, address, telephone number, a uniform resource locator

(URL) of his or her home page, etc.) and operation instruction, landmark registration is registerable on a land map being displayed on the display screen of this mobile information terminal 10b. Useful access information may be obtained by registration of famous sightseeing spots, hotels, restraints, lavatories and others.

It should be noted that the landmark registration may be arranged to be done with a charge applied thereto while asking payment of a registration fee. Although the registration per se is possible through the Internet, admission of free registration can result in inferior information being also registered. In such case, it will be preferable that registration and information disclosure be done separately or, alternatively, a method is employed for granting registration based on an administrator's judgment after having received a mail for registration.

A mobile information terminal 10c shown herein is in the state that it is receiving a landmark search service. This service is the one that when the mobile information terminal 10c sends landmark classify/sort data and more than one search key word (KW) plus operation instruction to the information delivery server 50, a search engine being provided in the information delivery server 50 or linked thereto will be executed causing its search result(s) to be displayed on the display screen of the mobile information terminal 10c.

The illustrative example is the one that the landmark classification of "Company" and the search keyword (KW) of "XX Factory" (S1) are input resulting in search results being displayed as shown by S2. When instructing an item

5 of MAP (3) in the search results of S2, its landmark will be map-displayed. The use of this search makes it possible to efficiently access many landmarks registered. Note that upon conduction of a search, if a search engine capable of offering "vague" searchabilities is utilized then the

10 resultant usability will be increased because of the fact that results are obtainable even when any complete title is unavailable.

Fig. 9 is a diagram showing an outline of a service to be done at the route search management unit 50-6. The

15 mobile information terminal 10a shown herein is in the state that it presently receives a route search service. This service is such that when the mobile information terminal 10a sends a starting location (present position) (M11) and destination location (M14) plus operation

20 instruction to the information delivery server 50, a route search is carried out causing its route search results to be displayed on the display screen of the mobile information terminal 10a while marking (R11) in colors and/or forms that are readily recognizable by users. This

25 route search function is principally the same as that performed in prior art car navigation systems. A difference in architecture of the former over the latter

is that the intended route search is done by the information delivery server 50 in accordance with a request from a mobile information terminal(s) 10. Due to this, suppose that the information delivery server 50 has a performance capable of processing a plurality of requests from mobile information terminals 10.

The mobile information terminal 10b shown herein is in the state that it is receiving a recommended route search service. This service is such that when the mobile information terminal 10b sends a starting location (present position) (M11) and desired field along with a range (land map display range) and time plus operation instruction to the information delivery server 50, a recommendable route search is carried out causing its recommended route search results to be displayed on the display screen of the mobile information terminal 10b while marking (R11, R12) in colors and/or forms that are readily recognizable by users. Upon execution of such recommended route search, search is done based on popularity data and time in addition to conditions or criteria as input thereto. Note that in cases where a plurality of recommended routes are available, guidance may be done while adding thereto a course title. The course title is to be added by the system in accordance with a final land point and/or a turn point or else or alternatively the popularity.

Fig. 10 is a diagram showing an outline of a service to be done at the situation/history management unit 50-7.

The mobile information terminal 10a is in the state that it is receiving a congestion service. This service is such that when the mobile information terminal 10a sends its present position and operation instruction to the

5 information delivery server 50, the information delivery server 50 uses a plurality of position information items as received from other mobile information terminals 10 being received at such time point to calculate the degree of congestion at a predefined place (each thema hall if

10 in a thema park) and then show it in a graphical form for output (Kon) to the mobile information terminal 10a. In the example shown in Fig. 10, reference numerals 120 to 150 correspond to titles of thema halls or "pavilions," showing that the thema hall 130 is full of people at the

15 maximum degree. As an index or indicator of this congestion degree, relative percent (%) is displayed or alternatively a waiting time is displayed or, still alternatively, a number of people will be displayed.

The mobile information terminal 10b is in the state

20 that it is receiving a popularity service. This service is such that when the mobile information terminal 10b sends information as to access to each guidance information along with operation instruction toward the information delivery server 50, the information delivery server 50 operates to

25 calculate the degree of popularity and then show it in a graphical form for output (Best) to the mobile information terminal 10b. Here, it is required that the access

information be employed while changing the weight thereof between then virtually getting access via the Internet (access information in units of virtual objects) and when accessing while actually going to such position (access information in units of real objects). More specifically the per-real object access information is higher in weight than the per-virtual object access information. Optionally it may also be possible to arrange so that the popularity is collected in the form of returning to the information delivery server those questionnaires predistributed via mobile information terminals 10 with respondents' comments being written thereinto.

The mobile information terminal 10c shown herein is in the state that it presently receives a history service. This service is such that when the mobile information terminal 10c sends access information such as time and date plus place along with operation instruction to the information delivery server 50, it outputs a history (Log) of position information obtained during activity in accordance with such access information. Upon clicking of a "time/date" icon in the Log as displayed on the display screen of the mobile information terminal 10c, a place to which a person has gone at such time on such day and will be displayed along with a nearby place map thereof, which will be preferably used by the person to put his or her diary and photographs in order after having gone home. Note here that in an image service as will be described

below in the description, it will be useful for information rearrangement by simultaneously recording when each photograph is taken at which position.

Fig. 11 is a diagram showing an outline of a service to be done at the individuals management unit 50-8. At the mobile information terminal 10a, this sends an ID and password (ID-PAS) to the information delivery server 50; if the ID and password sent via the information delivery server 50 are verified to be identical with preregistered ones, a variety of kinds of services will be received. Methodology for registration of individuals may include a scheme for permitting a user to do it on a registration screen, and a scheme for expecting a system administrator to issue an ID and password upon receipt of reservation. As previously stated, group registration may also be done at the individuals or "person" management unit 50-8. In this case a group name will be registered in Fig. 11: the group registration at the position management unit 50-4 will no longer be required.

Fig. 12 is a diagram showing an outline of a service to be done at the image management unit 50-9. The mobile information terminal 10a shown herein is in the state that it is receiving an image upload service. This service is a service that is for sending to the information delivery server 50 those images (Myphoto) as taken or accommodated by image pickup functionalities (CCD camera 10-5 and image input unit 10-6) of the mobile information terminal 10a

through execution of an operation instruction of an upload

button UPB which is set on the display screen of the mobile

information terminal 10a and then permitting storage

therein. Although in this example an explanation was given

5   in conjunction with an example for uploading images as

photographed by the mobile information terminal 10a,

another arrangement may alternatively be employable for

sending images as automatically taken by a camera installed

in an event place to the information delivery server 50

10   for storage therein. Additionally, in case these images

are sent to the information delivery server 50,

photographing time and shooting places (coordinates) will

also be sent together for storage at the information

delivery server 50 along with the images, which will be

15   utilized for user's record/rearrangement.

A mobile information terminal 10b shown in Fig. 12 is

an example that is receiving an image download service.

This service is a service that is arranged so that upon

issuance of operation instruction of a download button DNB

20   as set on the display screen of the mobile information

terminal 10b, more than one image corresponding to the user

ID will be able to be downloaded to either any mobile

information terminal 10 or an Internet terminal 30

connected on the Internet. Additionally in view of the

25   fact that an increased length of time period is required

to download all the images from the first one, an

arrangement may be employed for initially displaying a

photo-list or "thumbnail" image and thereafter receiving
a selection instruction for selection of one of thumbnail
images being presently displayed and then downloading only
such selected image. A further available arrangement is

5 that the selected image may be mailed to a destination
address designated.

A mobile information terminal 10c shown in Fig. 12 is
an example that is receiving an image printout service.
This service is a service which is arranged so that upon

10 issuance of an operation instruction of a print service
button PRB as set on the display screen of such mobile
information terminal 10c, a selected image or images will
be printed and output at a printer 50-18. The printer 50-18
is, for example, the one that is connected to a terminal

15 or else as disposed within a photo shop at an event place
or sightseeing spot while permitting a user to directly
receive. Alternatively it is also permissible to employ
an arrangement that connects the printer 50-18 directly
to the information delivery server 50. In this case, any

20 photo prints will be mailed to an address preregistered
in a way corresponding to the user IC or a newly designated
address.

An explanation will next be given of an exemplary
Internet business method, also called "business model" in

25 some cases, utilizing the multimedia information
delivery/distribution system in accordance with the
embodiment, with reference to Fig. 13 below.

As shown in Fig. 13, a computer communications system preferably adaptable for use with the business model of this example is typically arranged to include an information delivery/distribution business entity 1301

5   which manages and handles the information delivery server 50 stated supra and several associate entities coupled together over communication links with the entity 1301 being as a net center, wherein they may include a contents business entity 1302, advertisers or "sponsors" 1303 such

10   as shops, hotels, public organizations, etc., Internet users or subscribers 1304, carrier business entities 1305 for performing communications, business entities 1306 for performing events and/or planning, and more than one digital mobile tool user (say, "mobiler") 1307 who uses

15   his or her mobile information terminal 10. Such arrangement may be variable on a case-by-case basis; for example, two separate business entities, such as a contents provider entity and information distributor, may exist as a single business entity.

20   It should be noted that the advertiser(s) 1303 and Internet user 1304 plus carrier provider 1305 are the ones as included in the business model example at a sightseeing spot(s), which will often be excluded in an example of an event place(s). In other words, in view of the fact that

25   most event places are typically designed to employ locally installed "over-the-air" radiocommunications infrastructures (wireless LANs and/or private PHSs)

therein, the carrier provider 1305 will no longer be required in some cases. On the other hand, with the business model example at an event place, there will not always be necessary several services of the service

5   functionalities of the information delivery server 50 concerning landmark registration and search conduction.

In Fig. 13, arrows of solid lines are used to designate a flow of information and commodities whereas dotted line arrows denote money flows. The business model of this

10   example employs a method for renting mobile information terminals 10 to the mobilers 1307 who become receivers of information delivery/distribution services while distributing rental charges among respective business entities involved.

15   More specifically, the information delivery business entity 1301 first rents one or more mobile information terminals 10 to the event/planning business entity 1306. Next, the event/planning business entity 1306 rents a mobile information terminal 10 to the mobiler 1307 and then

20   charge a fee to use it, say rental charge. This rental charge is distributed among the event/planning business entity 1306, carrier business entity 1305 and information delivery business entity 1301 while the information delivery business entity 1301 pays an information use

25   charge to the contents business entity 1302. On the other hand, a respective one of the advertisers 1303 pays landmark charge and advertisement fee for landmark

registration and commercial advertisement activities.
Additionally the individual Internet user 1304 is expected
to pay a commodity purchase price to an advertiser 1303
once at a time whenever s/he purchases therefrom a
5 commercially available product.

Several arrangements are also available other than the
aforementioned business model example, one of which may
be such that the mobile information terminal 10 to be rented
is replaced by the mobiler 1307's own mobile information
10 terminal (including a terminal with mobile radiotelephone
or cellular phone functionalities) 10. If this is the case,
there is a model in which the carrier business entity 1305
imposes a required charge as a communication fee, which
will be distributed among respective business entities
15 concerned. In the case of distribution, it is permissible
that the total amount of charge is alterable depending upon
the resultant number of information access events or
alternatively the degree of congestion or popularity. One
example is that much money may be distributed to those
20 events with higher popularities. Optionally, an
arrangement is employable for offering to repeaters a
charge-off or "discount" privilege by application of
mileage services or point services.

In addition, an arrangement may be employed wherein
25 charging a fee such as a rental charge or communication
fee to the individual mobiler 1307 is replaced by charging
a fee in units of groups to which respective mobilers 1307

belong. Further, an arrangement may be used which permits a mobiler 1307 to make a monitor contract in advance with the information delivery business entity 1301 for unveiling access information concerning a traveling

5 history of the mobiler 1307 and/or to-the-facility access information be laid open to the information delivery business entity 1301 to thereby perform either charged money cancel-out or discount.

Alternatively an arrangement may be employable for

10 allowing a hotel or local tourist bureau to rent mobile information terminals to travelers. In this case, if such hotel or tourist bureau already has its own Web cite on the Internet then it may be arranged to add part or all of the functions of the above-stated information delivery

15 server 50 to inside of such cite. Furthermore, an arrangement may be used, which is for providing the above-noted services while directly connecting mobile information terminals and its associative information delivery server together by use of wired or wireless

20 radiocommunication schemes, public telephone networks, local area network (LAN) and wide area network (WAN), without via the Internet.

An explanation will next be given of a processing procedure for realization of the service functions to be

25 done by respective management units of the information delivery server 50, with reference to Figs. 14 to 35 below.

Fig. 14 is a flow chart showing one example of a

processing procedure or routine for realizing the service function of the guidance management unit 50-3. Acquire a present position from a mobile information terminal 10 (at step 50-3a). Judge whether the acquired present position is a predetermined guidance point (step 50-3b). While guidance points (coordinate positions) and guidance contents are combined together in a guidance table as provided within the guidance DB 50-11, judge based on whether the present position is identical to (actually, falls within a range of a fixed distance from) the predetermined guidance point (step 50-3b).

If coincidence is verified then output to the mobile information terminal event/sightseeing-spot guidance corresponding to the present position while at the same time performing "Logging" processing (step 50-3c). At the Logging processing, acquire from mobile information terminals 10 access information including count-up and time and data or else in units of users and in units of places of events/sightseeing-spots for prestorage on the guidance management unit 50-3 side for later utilization during popularity calculation and history services. This access information is stored as per-real object access information because the access has come at a real position. These access information items are for use with per-customer services and event guidance mails (what is called the "One To One" services).

While this Logging processing will also be used during

processing procedures for realization of other service
functions, its storage data may differ in units of
processings. Practically, this Logging processing is for
managing and handling the history of services as provided

5   in order to determine the amount of charge required to each
user; for example, the contents of services as provided
in units of users will be accumulated along with the history
thereof. Additionally, in cases where money charging is
done based on a connection time length or service provision

10 time period, an arrangement is employable for monitoring
a time length during provision of a service and for
determining on a real-time basis an amount of money for
debiting the user through the Logging processing once at
a time whenever each service providing session is

15 completed.

Note here that an arrangement may be employed which
is designed so that any guidance is not output immediately
even upon occurrence of coincidence with the guidance
point; alternatively, let the user pay attention by

20 blinking a corresponding part of a land map being presently
displayed on the display screen of mobile information
terminal 10 or alternatively producing alarm sounds and,
thereafter, the actual guidance output is performed after
receipt of input of a user's instruction. Further, the

25 contents of such guidance to be output are prepared in
accordance with places and contents such as still images,
video, audio sound/voice, etc.

At step 50-3b, if the present position acquired is not identical to the guidance point, then output to the mobile information terminal 10 the overall event/sightseeing-spot guidance and/or a list of guidance items capable of being output; then execute the Logging processing (step 50-3d). For instance, if it is an event place then visually display a sketch map of an amusement park or "thema" park; if a sightseeing spot then let a sightseeing MAP (map) be displayed.

Next, judge whether there is a point instructed by the user (step 50-3e). This is for obtaining a desired point's guidance service even when the mobile information terminal 10 is absent at any guidance point. If a user's instruction is found at step 50-3e then output event/sightseeing-spot guidance at the instructed point to the mobile information terminal 10 and then execute Logging processing (step 50-3f). The process flow of from step 50-3d to step 50-3f will also be used when accessing from a terminal on the Internet. Note that since these accesses will be regarded as per-virtual object access information because of the absence at such position.

Lastly, judge whether there is an instruction for termination of this guidance service: if it is not to be terminated, then return to step 50-3a for again repeating the guidance guiding (step 50-3g).

Although prior art guidance services such as ones to be performed at museums or the like have been designed in

most cases to utilize only audio-based guidance, with the multimedia information delivery or "broadcast" system of the illustrative embodiment, it becomes possible to deepen understanding of guidance objects because of the fact that this system is specifically designed to provide guidance guiding by multimedia including still images and video images or else. Furthermore, in accordance with this guidance services, it may serve just as an "electronic guide" due to the capability to let the mobile information terminal 10 provide appropriate guidance automatically in accordance with any traveled locations, not only when it is at event places and/or sightseeing spots but also while it is getting on a bus and/or in a motor vehicle.

Additionally, there is an effect that the contents for guidance are timely updatable by obtaining information from the contents business entity 1302 on the Internet. Furthermore, since the Logging processing is performed while distinguishing between whether the user of interest actually went to at such place or whether s/he virtually went thereto, there is an effect that a situation/history service as will be set forth later in the description can be made more precise.

Fig. 15 is a flow chart showing an example of a processing procedure for realization of the service functionality of the position management unit 50-4. With this processing routine, the processing is subdivided into three parts depending on the kind of a service to be done.

More specifically, judge the kind of a service corresponding to an operation instruction of an user as sent via a mobile information terminal 10 (step 50-4a):
if it is a self-position service, then go to self-position
5 processing (step 50-4b); if a group registration service then go to group registration processing (step 50-4d); if a group position service then jump to group position processing (step 50-4c). The above processing will be repeated until termination of this position service (step
10 50-4e).

An explanation will next be given of the self-position processing 50-4b, group position processing 50-4c and group registration processing 50-4d, respectively. Fig. 16 is a flowchart for realization of the self-position
15 processing 50-4b. With this processing, first acquire from a mobile information terminal 10 (step 50-4b1). Next, as shown in Fig. 7, output to the mobile information terminal a land map image indicative of the self-position and then perform Logging processing (step 50-4b2). This
20 service is a service convenient when loosing a way to go. Note that the self-position is indicated by a cross mark or allow mark or the like. It will be repeated until termination of the self-position service is instructed (step 50-4b3).

25 Fig. 17 is a flowchart for realization of the group position processing 50-4c. With this processing, fetch data indicative of the presence or absence of a present

position and group display flag from the mobile information terminal (step 50-4c1). Next, judge whether an user IC as sent from the mobile information terminal has been registered in the group DB 50-12 (step 50-4c2). If it has not been registered then jump to step 50-4c7 because this service is unavailable. On the other hand, if it has already been registered then judge whether the group display flag is present or not (step 50-4c3). If no group display flag is found then prevent displaying in order to protect privacy and then go to step 50-4c7.

On the other hand, if the group display flag is found then acquire from the mobile information terminal group information such as a group name and group ID and then compose or "synthesize" one of group marks present in units of groups onto a land map image in order to indicate the position of each member who belongs to the group with the user ID having been registered and, thereafter, output such composite image to the mobile information terminal, followed by execution of Logging processing (step 50-4c4). Next, in order to know further detailed information, in case there is an instruction for selection of one or a plurality of ones from group marks, output to a mobile information terminal that has issued such selection instruction certain information that a member corresponding to the instructed group mark has been set as a commonly useable one; then execute Logging processing (step 50-4c5 to step 50-4c6). Lastly repeat it until

termination of the group position service is instructed (step 50-4c7).

With this group position service, a present location of each member belonging to the same group is readily available, which in turn makes it possible to render contact and action readily understandable. For example, utilizing for school excursion trips in units of schools ("ABC" school group or the like) makes it possible to catch actions of individual students of the same school, which in turn is utilizable for preclusion of lost children or prevention of entry to dangerous land areas. Furthermore, by employing an arrangement for letting a wandering/roaming old person have a mobile information terminal that is group-registered together with others and for outputting his or her present location at regular intervals, it is advantageously possible for family members who own mobile information terminals registered to the same group to readily recognize the old person's present location. Additionally, when utilizing this service during car traveling, it is possible to become aware of a present location of each of land vehicles in which mobile information terminals belonging to the same group are installed, which in turn ensures that it is possible to have a drive with a group of associates, without any anxiety.

Fig. 18 is a flowchart for realization of the group registration processing 50-4d. With the group

registration function, first acquire user information (group name, ID, etc.) that has been sent from a mobile information terminal (step 50-4d1). Next, judge whether it is a new user with respect to the group of interest (step

5 50-4d2); if new then perform new group registration processing (step 50-4d4). If nor new then output a message saying completion of registration to the mobile information terminal (step 50-4d3). Lastly judge whether the group registration service is to be terminated or not

10 (step 50-4d5); if NO then repeat.

This service is for implementation of a position service of the same group. It is also possible to temporarily register only an event place or sightseeing spot or alternatively to register it continuously. Note

15 here that upon temporal registration, such group registration is to be deleted when the mobile information terminal is returned back. When utilizing the group position service continuously, it may also be a good idea to increase a group position service fee. It will be

20 preferable that the user is expected at the time of an application to select which one of the services is used.

Fig. 19 is a flowchart showing one exemplary processing routine for realization of the service function of the landmark management unit 50-5. With this processing

25 routine, the processing is divided into three parts depending on the kind of a service to be done. More specifically, judge the kind of a service required by an

operation instruction of a user as sent via a mobile

information terminal (step 50-5a): if it is a landmark

display service, then go to landmark display processing

(step 50-5b); if a landmark registration service then go

5   to landmark registration processing (step 50-5d); if a

landmark search service then jump to landmark search

processing (step 50-5c). The above processing will be

repeated until termination of the landmark service is

instructed (step 50-5e). A procedure at each processing

10   will next be explained below.

Fig. 20 is a flowchart for realization of the landmark

display processing 50-5b. This processing starts with a

step which acquires a present position and landmark

classification information from the mobile information

15   terminal (see step 50-5b1). Here, the "landmark

classificatory information" is to be understood to mean

the one that indicates a class or "category" of a facility

corresponding to the landmark--for example, restraint,

movie theater, amusement or "thema" park, etc. Next,

20   acquire scale information used for land map display from

the mobile information terminal (step 50-5b2). And

calculate a landmark display range from the present

position and scale information (step 50-5b3). On the other

hand, within the landmark display range, extract landmark

25   information in category being presently designated (step

50-5b4). Next compose the extracted landmark onto a land

map and then output it to the mobile information terminal,

followed by execution of Logging processing (step 50-5b5).

Next, judge whether either designation of coordinates on the landmark or designated of selection of a specific landmark is available from the user (step 50-5b6). If it

5 is found then output detailed information of the designated landmark to the mobile information terminal and then execute Logging processing (step 50-5b7). Lastly judge whether termination of the landmark display is instructed: if it is not to be terminated then jump to step 50-5b1;

10 then repeat (step 50-5b8).

In accordance with this landmark display service, this is the one that performs mark-displaying along with a variety of kinds of information items during position display services, which may be utilizable when

15 investigating whether any "want-to-go" sightseeing spot is present at nearby locations. In addition, due to the serviceability of detailed information display obtainable through designation of a landmark(s), it is possible to make a reservation by calling a facility corresponding to

20 the landmark or by getting access to a home page thereof. In particular, this is convenient for making reservations to hotels or eating houses. By applying Logging processing to access information available when the user requests detailed displaying of this landmark, it is possible to

25 utilize as basic data for popularity calculation and/or advertisement fee calculation to be done at the information delivery server. Additionally, registering as landmarks

specific icons prepared by advertisers makes it possible

to further increase the value for use as advertisement.

Registering such icons is done by a landmark registration

services as will be set forth below.

5   Fig. 21 is a flowchart for realization of the landmark

registration processing 50-5c. With this processing,

first designate given coordinates to call for a

registration display screen (step 50-5c1). The given

coordinates may alternatively be prior registered

10   coordinates or coordinates of a landmark registration

service to be described later or coordinates of a present

location. Next, output to the mobile information terminal

a land map image of an area including such designated given

coordinate position and then perform Logging processing

15   (step 50-5c2). Next, while having provided a setup

position being fixed with respect to the display screen

of the mobile information terminal, call for the user's

confirmation to judge whether the coordinates

corresponding to the setup position are the designated

20   coordinates for registration of a landmark. If judgment

is made to verify that the former is not the designated

coordinates, then receive and accept an operation

instruction for map scrolling via the mobile information

terminal, and then output to the mobile information

25   terminal a land map image obtainable when performing

scrolling in accordance with this scroll operation

instruction (step 50-5c3); thereafter, jump to step 50-5c2

for repeated execution of the same process until the designated coordinates are actually obtained.

In case the designated coordinates to be registered are obtained, acquire landmark information from the mobile information terminal (step 50-5c5). The landmark information may include the title of a landmark, address, telephone number, sentence for advertisement, URL of a home page to be linked, icon image for landmark, etc. A registration fee may be determined in accordance with the amount of information for publication. Next, compose the landmark to be registered onto a land map and then output its image to the mobile information terminal, followed by execution of Logging processing (step 50-5c6). Lastly, judge whether the landmark registration is to be terminated or not; if it is not to be terminated then jump to step 50-5c1 to repeat similar processing (step 50-5c7).

This landmark registration service is such that its conveniency is made higher especially by registration of certain places at which travelers stop, such as sightseeing spots, event sports, hotels or the like. Note however that unconditionally permitting whoever to do such registration can lead to occurrence of a difference from the real place, resulting in a decrease in credibility of landmark. To avoid this, it is necessary upon registration to formulate registrant information into a registration system or alternatively charge a fee for registrants to do it.

Fig. 22 is a flowchart for realization of a landmark

search processing 50-5d. With this processing, first
acquire from the mobile information terminal 10 both the
class of a landmark to be searched and search keyword (KW)
information (step 50-5d1). Next, based on these
5   information items, search for a landmark DB 50-14 and
output its results to the mobile information terminal 10
and then perform Logging processing (step 50-5d2). Next,
the search results are usually list-output (see Fig. 8);
then, judge whether a request for land map displaying is
10   found (step 50-5d3). If such request is present then
output a map image of such landmark to the mobile
information terminal for execution of Logging processing
(step 50-5d4). Lastly, judge whether the landmark search
is to be terminated or not; if it is not to be terminated
15   then go to step 50-5d1 to repeat searching (step 50-5d5).

Upon execution of landmark search, it should be
required that the intended search can be done from a variety
of angles. For instance, it is designed to offer
searchabilities by using any kinds of keywords such as
20   classification, title, address, telephone number,
sentence for advertisement and the like. It also be
designed to offer search narrowing capabilities. With
such arrangements, it is possible for users to do searching
by use of any keywords as promptly taken into their heads,
25   which in turn increases convenience properties.

Fig. 23 is a flowchart showing one exemplary processing
routine for realization of the service function of the

route search management unit 50-6. With this processing routine, the processing is subdivided into two parts depending on the kind of a service to be done. More specifically, judge the kind of a service requested by a

5   user based on his or her instruction as sent via a mobile information terminal (step 50-6a): if it is a route search service, then go to route search processing (step 50-6b); if a recommended route search service then jump to recommended route search processing (step 50-6c). The

10   above processing will be repeated until entry of an instruction for termination of the route search service (step 50-6d). Each processing routine will next be explained below.

Fig. 24 is a flowchart for realization of the route

15   search processing 50-6b. With this processing, first acquire a self-position and destination location information from a mobile information terminal (step 50-6b1). Next, utilize the landmark DB 50-13 to perform route search calculation (step 50-6b2). Methodology of

20   this route search calculation is such that any method which is the same as route search calculation methods being carried out in prior known navigation systems may be employed, although not specifically limited thereto in the present invention. Next, draw a route search result onto

25   a land map (using colors visually distinguishable from a background color) as shown in Fig. 9 by way of example and output it to the mobile information terminal and then

execute Logging processing (step 50-6b3). Lastly judge whether the route search is to be terminated or not; if it is not to be terminated then go to step 50-6b1 to repeat similar processing (step 50-6b4).

Although this route search service is the one that achieves the route search function in prior known navigation systems, the service is different therefrom in arrangement for realizing its route search function. More specifically, any mobile information terminals in this embodiment are provided with no land map databases--the map databases are provided in the information delivery server 50. Due to this, when compared to prior art navigation systems with built-in map databases, it is possible to always store the newest or "up-to-date" information, leading to an advantage of achievement of excellent maintenance properties.

Furthermore, with the mobile information terminals in accordance with this embodiment, there is a merit in that the mobile information terminals are configurable at low production costs because of the fact that any compact disc read-only memories (CD-ROMs) or digital versatile disk (DVD) drives are no longer required for constitution of the land map databases. Additionally, although the mobile information terminals of this embodiment do require a communication fee for receipt of land map data, such communication fee may be reduced by letting a land map of a travel route searched be "cached" in the memory of a mobile

information terminal (when looking at from the information delivery server side, the travel route map is sent to the mobile information terminal).

Fig. 25 is a flowchart for realization of the recommended route search processing 50-6c. With this processing, first acquire from a mobile information terminal certain information to be considered when conducting a search, such as a desired field (museum course, sightseeing spot course, etc.), range (e.g. a 10-km zone), an estimate and/or time or else (step 50-6c1). Next, utilize the land map DB 50-13 to conduct a search for more than one route that satisfies input conditions or criteria and then list up candidates (step 50-6c2). Additionally, upon calculation of recommended route search calculation, conducting the route search with the degree of popularity and/or congestion of sightseeing spots or event places makes it possible to increase resultant service quality. Accordingly, it may also be designed so that search conditions concerning the popularity and/or congestion degree are also input from the mobile information terminal.

Next, draw such candidate search results onto a land map with different colors applied thereto and then output them to the mobile information terminal and thereafter execute Logging processing (step 50-6c3). Note here that although in this example the candidate search results are drawn and composed onto the land map, it may alternatively arranged so that a list of candidates is output to the mobile

information terminal and, after designation of the list,

the map is output to the mobile information terminal. An

arrangement is also employable which is such that several

information items such as the popularity, congestion,

5   required time length, distance and the like are added to

the candidate list for use as criteria for course selection.

Furthermore, when equivalent to a recommended spot a user

per se or other users have pre-registered, an arrangement

is employable for adding such information to the

10   above-noted candidate list. Lastly judge whether the

recommended route search is to be terminated or not; if

it is not to be terminated then jump to step 50-6c1 to repeat

similar processing (step 50-6c4).

This recommended route search is such that course

15   selection is left to the information service provider side,

which will be convenient when first visiting such event

place or sightseeing spot. Further, selecting one from the

courses of the recommended route search results makes it

possible to realize navigation functionality for

20   indicating a forward traveling direction once at a time

whenever reaching a traffic intersection or else, as in

known navigation processings. Except for the recommended

route search, route searches may be conducted in a way such

that certain search conditions may be added to ensure

25   pass-through of recommendable spots the user per se or

other users have preregistered or other given spots.

Fig. 26 is a flow chart showing an exemplary processing

procedure for realization of the service function of situation/history management unit 50-7. With this processing routine, the processing is subdivided into three parts depending on the kind of a service under request.

5　More specifically, judge the kind of a service indicated by an operation instruction of a user as sent via a mobile information terminal (step 50-7a): if it is a congestion degree service, then go to congestion processing (step 50-7b); if a popularity service then go to popularity

10　processing (step 50-7c); if a history service then jump to history processing (step 50-7d). The above processing will be repeated until termination of the situation/history service (step 50-7e). A respective processing routine will next be explained below.

15　Fig. 27 is a flowchart for realization of the congestion processing 50-7b. Firstly acquire self-position information of each mobile information terminal (step 50-7b1). Apply grouping to each mobile information terminal by using coordinates corresponding to the

20　self-position thus acquired; then, calculate a number of mobile information terminals as included in a group per facility of interest (step 50-7b2). This calculation enables setting of groupings as shown by 200 to 240 in Figs. 4 and 5. Practically, such grouping will become possible

25　by combining those mobile information terminals existing at mutually nearby locations into a single group. And compare a coordinate position corresponding to the group

thus set up with the coordinate position of preregistered facility to thereby presume or estimate specific facility of interest whereat members of this group are entering or waiting for admission to enter. Next, calculate the average moving speed of respective members from the history DB 50-15 and the self-position information of each mobile information terminal presently acquired (step 50-7b3). The moving speed of each mobile information terminal is obtainable from differences of respective ones of the distance and time of history position information and will be obtained by averaging moving speeds of respective individuals who belong to the same group.

Next, calculate the degree of congestion in units of "object" facilities while adding the mobile information terminal number of each group, average moving speed, and further prespecified coefficient (step 50-7b4). One example is that the density of terminals per object facility is obtainable from the mobile information terminal number per object facility with respect to the total number of mobile information terminals in a thema park. The greater this terminal density, the greater the resultant congestion degree. On the other hand, if the average moving speed is less in value, it will also be possible to judge so that it is full of people. Further, adding for consideration the prespecified coefficient is necessary because the mobile information terminal number is not necessarily limited to 1 piece per person. Next,

graphically represent the congestion degree per object
facility for output to the mobile information terminal (see
Fig. 10); then execute Logging processing (step 50-7b5).
Lastly judge whether the congestion service is to be

5   terminated or not; if it is not to be terminated then jump
to step 50-7b1 to repeat similar processing (step 50-7b6).

As apparent from the foregoing, in the case of an
amusement or "thema" park by way of example, presentation
of the congestion degree enables users to be aware of which

10   thema hall is presently full of people on a real-time basis,
which in turn permit them to go to other thema halls that
are not crowed. In addition, the congestion service in
accordance with this embodiment is applicable not only to
the case of thema park but also to any cases where a

15   plurality of enterable facilities are available within a
specific land area or region, one practical example of
which is such that it is possible to calculate the degree
of congestion per conveyance in a recreation ground or
alternatively the degree of congestion or else per shop

20   or per restraint at a shopping center.

It is also possible to indicate which road is presently
crowed by installation of a mobile information terminal
into a land vehicle for setting up the above-stated
grouping in units of roads and then calculating the average

25   traveling speed and/or congestion degree. Due to this, it
is possible for a vehicle driver who is the user of the
mobile information terminal of this embodiment to select

any not-crowded travel route upon conducting of a route
search.

Fig. 28 is a flowchart for realization of the
popularity processing 50-7c. Firstly acquire per-real-
5   object access information of each mobile information
terminal (step 50-7c1). This access information is
typically obtainable when the user actually reach such
object facility or location. Next gain per-virtual-
object access information in the case of getting access
10   to more than one terminal on the Internet or alternatively
a Web cite or cites on the Internet concerning either the
object facility or location without actually going to such
object facility or location or still alternatively
information such as information providing services
15   utilizing FAX's automatic responses (step 50-7c2). Next,
use the history DB 50-15 and/or individual's ID to extract
repeater information, which is the information indicating
that the same information has been accessed many times
repeatedly (step 50-7c3).

20   Next, calculate the degree of popularity through
weighted averaging using certain weight coefficient of the
above-obtained per-real-object access information and
per-virtual-object access information plus repeater
information (step 50-7c4). Next graph and output the
25   popularity degree in units of object facilities to the
mobile information terminal and then execute Logging
processing (step 50-7c5). Lastly judge whether the

popularity service is to be terminated or not; if it is not to be terminated then jump to step 50-7c1 to repeat similar processing (step 50-7c6).

This popularity service is a measure useful for newcomers or beginners. Additionally an arrangement may also be employed for proposing a route in view of this popularity when conducting recommended route searches.

Except for the popularity service stated supra, those services are also available by using individuals' position information as will be presented below. First, by processing the people's position information based on the distinction of time zone, date, month, region, age and male/female, several services are realizable including but not limited to (1) a population migration distribution service showing how people has moved, (2) a mobilized people number service at either outdoor or "open-air" music event places or thema parks, (3) area-distinct departure population distribution service, and (4) age/sex-distinct departure population distribution service.

The information noted above may be used as marketing information or alternatively as basic information of a variety of plans such as shop plan, traffic plans, etc. These information items as to population distribution may also be provided to member-registered business enterprises, public and/or individuals with a charge required therefor. It will also be possible to monitor or "watchdog" the population distribution for a fixed length of time period

or a change in population distribution based on previously

reserved monitoring information for servicing such

information.

Fig. 29 is a flowchart for realization of the history

5 processing 50-7d. With this processing, first output a

history information menu (schedule, place, classification,

etc.) shown for example in Fig. 10 to the mobile information

terminal (step 50-7d1). Next, acquire menu select

information from the mobile information terminal (step

10 50-7d2). Next, output history information pursuant to a

selected menu to the mobile information terminal and then

execute Logging processing (step 50-7d3). Lastly judge

whether the history service is to be terminated or not;

if it is not to be terminated then jump to step 50-7d1 to

15 repeat similar processing (step 50-7d4).

This history service is the one that services the

history of events and/or sightseeing spots to which a user

having the mobile information terminal of this embodiment

has visited in the past, which service will be utilized

20 when rearranging photographs later or when recording

sentences or alternatively for preparation of his or her

next travel plan. Further, it will be preferable that this

history service be arranged not only to enable access from

the mobile information terminal but also to enable access

25 by use of the same user's ID by way of example even when

the user who owns the mobile information terminal wants

to utilize an Internet terminal at his or her home or other

Internet terminals.

Fig. 30 is a flowchart showing an example of a processing procedure for realization of the service function of the individuals or person management unit 50-8.

5 With this processing routine, the processing is subdivided into three parts depending on the kind of a service requested. More specifically, judge the kind of a service indicated by an operation instruction of a user as sent via a mobile information terminal (step 50-8a): if it is

10 a new registration, then go to new registration processing (step 50-8b); if a person attestation then go to person attestation processing (step 50-8c); if a change or modification then jump to modification processing (step 50-8d). The above processing will be repeated until

15 termination of the individuals management service is instructed (step 50-8e).

This person management service is the one that handles and manages individuals' IDs and passwords and thus is inevitable for identification of individuals and further

20 for history management on a per-person basis. In addition, this is an essential function for the so-called "One to One" services which are for providing services in a way corresponding to a request from each individual person. With this embodiment, its practical processing routine

25 should not be limited to the above scheme if it is possible to perform new individual registration and issuance of a person ID and password at the new registration processing

(step 50-8b), attestation of an individual's ID and password as sent from a user at the person attestation processing (step 50-8c), and alteration of a password or else at the modification processing (step 50-8d)--for

5   example, individuals management processing similar to prior known individuals management schemes such as member registration to Internet service providers may also be employed.

Fig. 31 is a flowchart showing an exemplary processing

10   routine for realization of the service function of the image management unit 50-9. With this processing routine, the processing is subdivided into three parts depending on the kind of a service. More specifically, judge the kind of a service in accordance with a user's operation

15   instruction as sent via a mobile information terminal (step 50-9a): if it is an image upload, then go to image upload processing (step 50-9b); if an image download then go to image download processing (step 50-9c); if an image printout then jump to image print processing (step 50-

20   9d). The above processing will be repeated until termination of the individuals management service is instructed (step 50-9e). Each processing routine will next be explained below.

Fig. 32 is a flowchart for realization of the image

25   upload processing 50-9b. With this processing, first receive an image that has been sent from each mobile information terminal with image data stored therein as

shown in Fig. 12 (step 50-9b1). Next, perform filing such received image in the image DB 50-17 in a way corresponding to each user ID of the mobile information terminal from which the image data has been sent (step 50-9b2). Next, output an image receipt completion message to the mobile information terminal and then perform Logging processing (step 50-9b3). Lastly judge whether the image uploading is to be terminated or not; if it is not to be terminated then jump to step 50-9b1 to repeat similar processing (step 50-9b4).

This image upload service is the service that files any user's photographed images in the information delivery service, which will be used for to-be-later-described image download service and/or image print service or the like. Note here that upon providing the image upload service, an arrangement may also be employed which incorporates a method including the steps of visually displaying a thumbnail image on a mobile information terminal display screen, requesting a user to select only those images need to be uploaded, and then uploading such selected images only.

Note here that although the upload image is the one photographed from the user's mobile information terminal, the present invention should not be limited to this example. For example, in place of the use of a CCD camera provided at the mobile information terminal, more than one camera installed in facility within an event place or thema park

is used to automatically shoot subjects or scenes to provide photo images, which will be uploaded periodically. In this case, it is difficult to identify any individual photographed; to avoid this, an arrangement may be employed

5   which is for assigning a group ID in a way corresponding to such photo-shooting place, filing images together, permitting the individual user to later select from among the filed images certain image(s) at least partly containing therein his or her figure, and then downloading

10   such selected image(s). Additionally, in the case of auto-photographing using the facility's camera, an arrangement may also be employed for setting up a temporary password and for filing images along with such password.

Fig. 33 is a flowchart for realization of the image

15   download processing 50-9c. With this processing, take out of the image DB 50-17 an image corresponding to a user ID of either a mobile information terminal that has sent an operation instruction for image downloading or an Internet terminal (step 50-9c1). Next, output the extracted image

20   to either the mobile information terminal or the Internet terminal (step 50-9c2). Next, output an image send completion message to the mobile information terminal and then execute Logging processing (step 50-9c3). Lastly judge whether the image downloading is to be terminated

25   or not; if it is not to be terminated then jump to step 50-9c1 to repeat similar processing (step 50-9c4).

This image download service is for use when downloading

an image or images to the user's mobile information
terminal in event places or at sightseeing spots (may be
serviced in the form of magnetic files) or alternatively
when downloading to the Internet terminal. At the step
5   50-9c1, an arrangement may also be employed for first
outputting a thumbnail image, allowing the user to select
an image(s) to be downloaded, and them actually downloading
such selected image(s). With such an arrangement, it is
possible to reduce a communication fee or charge otherwise
10   required for downloading of unnecessary images.

Fig. 34 is a flowchart for realization of the image
printout processing 50-9d. With this processing, first
take out of the image DB 50-17 an image that corresponds
to the user ID of interest (step 50-9d1). Next, output such
15   extracted image to either the information delivery server
or a printer 50-18 of a printout-exclusive terminal as
installed at an event place or sightseeing spot (step
50-9d2). Next output an image print completion message to
the mobile information terminal and then execute Logging
20   processing (step 50-9d3). Lastly judge whether the image
printout is to be terminated or not; if it is not to be
terminated then jump to step 50-9d1 to repeat similar
processing (step 50-9d4).

This image print service is such that printout may be
25   done at a printer machine as connected to the terminal of
a photo shop in the event place or sightseeing spot. Also
note that at the step 50-9d1, a thumbnail image is first

displayed permitting the user to make selection and thereafter image printout is actually done, thereby reducing a communication fee or charge required.

Fig. 35 is a flowchart showing one exemplary processing
5 routine for realization of the service function of the money-impose/charge management unit 50-10. With this processing routine, the processing is subdivided into two parts depending on the kind of a service. More specifically, judge the kind of a service indicated by the
10 user's operation instruction as sent via a mobile information terminal (step 50-10a): if it is a present charge situation, then go to present charge situation · processing (step 50-10b); if a past charge situation then go to past charge situation processing (step 50-10c). The
15 above processing will be repeated until termination of the charge management service is instructed (step 50-10d).

At the present charge situation processing (step 50-10b), a money-charge situation at a present session is calculated in the state of receipt of service provision
20 after startup of a present access, wherein the charge situation thus calculated will be output to the mobile information terminal 10. Here, suppose that money charge is done in accordance with a connection time period at the present session, the amount of information being sent or
25 received or the contents of a service being provided, and then its accumulation is calculated. Additionally at the past charge situation processing (step 50-10c), the

situation of charged money up to a previous day, for example, is calculated or accumulated for output to the mobile information terminal 10.

This money-charge service is a service for checking for either optional services or amount-based or "pay-per-data" money charge situation other than a rental fee of a mobile information terminal for rental use and then notifying it to the user. For example, it is a service that permits inquiry about a presently charged money amount at any time required on a real time basis in cases where the communication charge is determined on a per-data basis in excess of a predefined length of time period while letting the image upload be of such pay-per-data charging system in accordance with a size if it is greater than a fixed size and, further, in case image printout is also made optional. This present charge situation service will also be effective in the case of using the user's mobile information terminal(s). Additionally data of the charge service is calculated from Logging processing data. In addition, payment of a charge required will be done by means of pay-in-cash or payment via postal transfer from a card or the like.

The above flowcharts are the ones that describe services provided and executed by the information delivery server 50. On the other hand, the mobile information terminal 10 is operable to perform the following processing. More specifically, at the mobile information terminal 10

(see Fig. 2), it performs several processing tasks including but not limited to 1) processing for monitoring operation instructions to the coordinate input unit TB 10-7,
2) present position detection processing by GPS 10-9 and
5   position detector unit 10-4, 3) image input processing by CCD camera 10-5 and image input unit 10-6, 4) display processing and audio processing for performing multimedia guidance by LCD 10-8 and speaker 10-10, and 5) Web processing for getting access to the Internet.

10   The mobile information terminal 10 displays a service menu shown in Fig. 36 for example for presentation to the user button regions 3601-3608 corresponding to service functions of respective management units 50-3 to 50-10 whereby it mainly is in charge of the man-machine interface
15   section which enables the user to utilize any given service function while provision of service functions are realized by the information delivery server 50.

Note that the processing upon receipt of each service is assumed to be done in the form corresponding to the
20   processing routines (see Figs. 14 to 35) for realization of the service functions as performed by the above-noted information delivery server 50. With a typical example of this embodiment, the mobile information terminal is designed to first send to the information delivery server
25   50 the title of a service the user requests and his or her own present position, then accept data indicative of a service content being automatically generated at the

information delivery server 50 in accordance with the present self-position and sent thereto, and then output the data from either the display screen (LCD 10-8) or the speaker 10-10.

5   Although in the explanation of the multimedia information delivery/distribution system in accordance with this embodiment the event/sightseeing-spot has been described as an example, the principles of the present invention may also be used for applications other than this

10   example. More specifically, due to the multimedia information delivery system for providing multimedia guidance by use of position information of more than one mobile information terminal, it is possible to permit a bus travel company to utilize the multimedia guidance

15   service shown in Fig. 14 as an electronic guidance system for subsidiary utilization of bus guides or, alternatively, utilize the group position service shown in Fig. 17 to thereby realize other systems including either a wondering/roaming old person tracing system or a system

20   for allowing a transport company or taxi company to rapidly specify the nearest land vehicle to a customer of interest. Obviously, in case any individual person takes the mobile information terminal 10 in his or her motorcar, it becomes possible to establish not only a mere car navigation

25   service but also a system for enabling the user to receive a variety of kinds of services stated supra.

In accordance with the multimedia information

delivery/distribution system incorporating the principles of the present invention, it becomes possible to recognize the position or location of any user who is hand-carrying a mobile information terminal and provide information
5   services utilizing such recognized location.

Another advantage of this invention is that completion of group preregistration makes it possible successfully recognize the location of a respective one of members who belong to the same group on a real-time basis without
10   requiring mutual communications between members of the group.

Yet another advantage of the invention is that the position information of the individual mobile information terminal may be used to provide the distribution of people
15   in an event place or at a sightseeing spot with or without its moving situation on a real time basis. Due to this, there is an advantage that the user is able to do prompt handling with respect to his or her activity to be next taken. Furthermore, since the recommended route search is
20   made possible while taking into consideration the degree of congestion or popularity from the people distribution, it is possible to effectively provide route guidance that is easy to even beginners.

Still another advantage of the instant invention is
25   that the capability to upload or download images from mobile information terminals to the information delivery server in units of individuals avoids the need for

provision of any large storage means at the mobile
information terminals, which in turn makes it possible to
reduce the weight and production cost of such mobile
information terminals.

5   A further advantage of the invention lies in an ability
to establish an appropriate fee/charge determination
scheme through execution of the Logging processing in units
of users, once at a time whenever guidance is output to
a mobile information terminal.

What Is Claimed Is:

1.   An information delivery system including a plurality
of information terminal devices and a server apparatus
5   connected to respective ones of said information terminal
devices for providing information as required from each
information terminal device, characterized in that each
of said plurality of information terminal devices
comprises:
10   position detection means for detecting a position of
itself,
         terminal side communication means for transmitting
information indicative of said position thus detected
toward said server apparatus while receiving information
15   as sent from said server apparatus;
         operation instruction receipt means for receiving and
accepting from a user an operation instruction for
instruction of the content of a service required and for
permitting transmission of the operation instruction
20   toward said server apparatus through said terminal side
communication means; and
         output means for outputting the information as sent
from said server apparatus in a way corresponding to said
service required, and that
25   said server apparatus comprises:
         server side communication means for receiving
information indicative of a position being sent from said

each information terminal device and for transferring
information as generated by utilization of the position
information toward more than one information terminal
device; and

5   processor means for generating information to be sent
to said information terminal device by utilizing the
position information as sent from said information
terminal device, wherein

said information terminal device is operable to detect
10   the position of said information terminal device at a
predefined timing for transmission of information
indicative of the detected position toward said server
apparatus, and

said server apparatus further comprises position
15   information storage means for storing therein position
information as sent from said plurality of information
terminal devices in units of users of the information
terminal devices.

20   2.   The information delivery system as recited in claim
1, characterized in that

said information terminal device sends forth the
information as to the position of said information terminal
device toward said server apparatus when corresponding to
25   at least one of a case where a specified length of time
has elapsed since its previous position information
transmission event and a case where the position has

changed by a degree greater than a predefined threshold
value.

3.   The information delivery system as recited in claim
5   1, characterized in that

said server apparatus further comprises group
information storage means for storing therein information
used to specify a group to which said user belongs on a
per-user basis, and that

10   the processor means of said server apparatus comprises
position service means for generating, when the operation
instruction being sent from said information terminal
device requires a group display service, image information
adapted to be used for displaying on the same land map image

15   screen a combination of a user position as indicated by
the position information from said information terminal
device and a position as sent from the information terminal
device of another user who belongs to the same group as
said user and for permitting the image information thus

20   generated to be transmitted from said server side
communication means to said information terminal device.

4.   The information delivery system as recited in claim
3, characterized in that in said server apparatus of said
25   information delivery system,

said group information storage means is for storing,
in addition to the information for specifying a group to